

FLUID PRESSURE REGULATED WAFER POLISHING HEAD

Abstract

A wafer polishing head utilizes a wafer backing member having a wafer facing pocket which is sealed against the wafer and is pressurized with air or other fluid to provide a uniform force distribution pattern across the width of the wafer inside an edge seal feature at the perimeter of the wafer to urge (or press) the wafer uniformly toward a polishing pad. Wafer polishing is carried out uniformly without variations in the amount of wafer material across the usable area of the wafer. A frictional force between the seal feature of the backing member and the surface of the wafer transfers rotational movement of the head to the wafer during polishing. A pressure controlled bellows supports and presses the wafer backing member toward the polishing pad and accommodates any dimensional variation between the polishing head and the polishing pad as the polishing head is moved relative to the polishing pad. An integral, but independently retractable and extendable retaining ring assembly is provided around the wafer backing member and wafer to uniformly and independently control the pressure of a wafer perimeter retaining ring on the polishing ad of a wafer polishing bed.